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New U.S. Application
Docket No. 32860-000558/US

~~Patent claims~~What is claimed is:

1. A method for exchanging a first detector module (m), ~~having~~ including K channels (x) from k to j in an X-ray detector in a ~~computer~~computed tomograph ~~having~~ including a module configuration a with a total of M detector modules and KxM channels, for a second detector module (m'), wherein the first detector module ~~has~~ includes an associated correction table ($T_{S(a,m,x)}$), for eliminating temperature-dependent signal changes, which is dependent on the respective module configuration of the detector and ~~needs to be~~is recreatable~~d~~ following the exchange of a detector module, ~~characterized in that~~comprising:

creating, for the first and second detector modules ~~(m, m'), preferably at the same position,~~ in a detector in a reference ~~computer~~computed tomograph ~~having~~ including the module configuration b, a respective correction table ($T_{S(b,m,x)}$, $T_{S(b,m',x)}$) ~~is created~~; ~~and~~

ascertaining ~~its~~ differences values in the correction tables, ~~preferably only in the area of the channels of the detector module which is to be exchanged~~;, ~~are ascertained~~ and

calculating a~~the~~ new correction table ($T_{S(a,m',x)}$), for operating the second detector module (m') in the ~~computer~~computed tomograph ~~having~~ including the module configuration a, ~~is calculated~~ by transferring the ascertained difference values to the old correction table ($T_{S(a,m,x)}$).

2. The method as claimed in ~~the preceding patent~~ claim 1, ~~characterized in that the~~wherein individual values for the new correction table ($T_{S(a,m',x)}$) are calculated on the following basis:

$$S_{a,m',x} = S_{b,m',x} + \frac{1}{K}\left(\sum_{i=k}^{j} S_{a,m,i} - \sum_{i=k}^{j} S_{b,m,i}\right)$$

where N is the number of channels of a detector module from channel k to j, $S_{n,o,p}$ corresponds to the correction value S for the module configuration n with the detector module o, and the channel x is an element of the channels k to j.

3. The method as claimed in ~~one of the preceding patent~~ claims ~~1 to 2~~, ~~characterized in that~~wherein, in the event of failure of a channel (i) of the detector module (m) which is to be exchanged, the signal values (S) for ~~this~~ the channel are calculated by at least one of interpolating ~~or~~ and extrapolating adjacent channels.

4. The method as claimed in ~~one of the preceding patent~~ claims ~~1 to 3~~, ~~characterized in that~~wherein a channel (i) is regarded as being faulty if the measured signal values (S) for ~~this~~ the channel (i) exceed a prescribed limit value.

5. The method as claimed in ~~one of the preceding patent~~ claims ~~1 to 4~~, ~~characterized in that~~wherein the new correction table ($T_{S(i,m',x)}$) is created by reverting to a correction table ($T_{S(a,m,x)}$) measurement which was created and archived prior to failure~~, preferably before the computer tomograph was delivered~~.

6. The method as claimed in ~~one of the preceding patent~~ claims ~~1 to 5~~, wherein ~~characterized in that~~ the new correction table ($T_{S(a,m',x)}$) is created by reverting to a correction table ($T_{S(b,m,x)}$) measurement which was created and archived prior to failure, preferably before the ~~computer~~computed tomograph was delivered.

7. The method as claimed in claim 1, wherein the first and second detector modules are at the same position.

8. The method as claimed in claim 1, wherein the differences in the correction tables are ascertained in an area of the channels of the detector module which is to be exchanged.

9. The method as claimed in claim 2, wherein, in the event of failure of a channel (i) of the detector module (m) which is to be exchanged, the signal values (S) for the channel are calculated by at least one of interpolating and extrapolating adjacent channels.

10. The method as claimed in claim 3, wherein a channel (i) is regarded as being faulty if the measured signal values (S) for the channel (i) exceed a prescribed limit value.

11. The method as claimed in claim 5, wherein the new correction table ($T_{S(a,m',x)}$) is created by reverting to a correction table ($T_{S(a,m,x)}$) measurement which was created and archived before the computed tomograph was delivered.

12. The method as claimed in claim 3, wherein the new correction table ($T_{S(a,m',x)}$) is created by reverting to a correction table ($T_{S(a,m,x)}$) measurement which was created and archived prior to failure.

13. The method as claimed in claim 4, wherein the new correction table ($T_{S(a,m',x)}$) is created by reverting to a correction table ($T_{S(a,m,x)}$) measurement which was created and archived prior to failure.

14. The method as claimed in claim 6, wherein the new correction table ($T_{S(a,m',x)}$) is created by reverting to a correction table ($T_{S(b,m,x)}$) measurement which was created and archived before the computed tomograph was delivered.

15. The method as claimed in claim 3, wherein the new correction table ($T_{S(a,m',x)}$) is created by reverting to a correction table ($T_{S(b,m,x)}$) measurement which was created and archived prior to failure.

16. The method as claimed in claim 4, wherein the new correction table ($T_{S(n,m',x)}$) is created by reverting to a correction table ($T_{S(n,m,x)}$) measurement which was created and archived prior to failure.